

**WHAT IS CLAIMED IS:**

1. A method of coating a body with an  $\alpha$ -alumina layer comprising:

(i) bringing the body into contact with a hydrogen carrier gas containing one or more halides of aluminium and a hydrolysing and/or oxidizing agent while the body is at a temperature of 950-1000°C;

(ii) maintaining the oxidation potential of the CVD-reactor atmosphere prior to the nucleation of  $\text{Al}_2\text{O}_3$  at a low level, using a total predetermined concentration of oxidizing species;

(iii) starting  $\text{Al}_2\text{O}_3$  growth by introducing the following gases into the reaction chamber:  $\text{AlCl}_3$ ,  $\text{HCl}$  and  $\text{CO}_2$ ;

(iv) adding a sulphur dopant after 20-60 min;

(v) repeatedly stopping the  $\text{CO}_2$ ,  $\text{AlCl}_3$ ,  $\text{HCl}$  and the sulphur dopant for intervals of 10-50 min during which  $\text{TiCl}_4$  is allowed to enter the reactor for 1-10 min in a concentration of 1-10%; and

(vi) then reintroducing  $\text{AlCl}_3$ ,  $\text{HCl}$ ,  $\text{CO}_2$  and the sulphur dopant, in that order.

2. The method of claim 1, wherein in step (ii), the concentration of the oxidizing species is below 5 ppm.

3. The method of claim 2, wherein the oxidizing species comprises  
H<sub>2</sub>O.
4. The method of claim 1, wherein the sulphur dopant comprises H<sub>2</sub>S.